Minutes of the Propagation Studies Committee

13th May 2017

Attendees:

Steve Nichols	G0KYA	Chairman
Dr John Worsnop	G4BAO	Vice Chairman
Chris Deacon	G4IFX	Secretary
Alan Melia	G3NYK	
Ron Smith	G3SVW	
Gwyn Williams	G4FKH	(by Skype)
Sam Jewell	G4DDK	
Prof Barry Chambers	G8AGN	

1. Apologies for absence

None received.

2. Minutes of meeting held on 24th September 2016

These minutes had previously been approved via email and posted on the RSGB website.

3. Matters arising from the minutes of the previous meeting

3.1. RAL "Cheap as Chips" Digisonde

Nothing more has been heard about the RAL 'cheap as chips' ionosonde proposal. Ruth Bamford is no longer based on the Harwell campus. For the time being, this proposal must be considered to be in abeyance.

4. PSC membership

4.1. Full members

The chairman welcomed new full PSC member Tim Fern, G4LOH to the meeting. Tim brings a great deal of VHF propagation experience.

Tim's appointment brings the number of full members to eight and it was agreed that there is no specific requirement for additional members at this stage, unless someone with a particularly useful skill or interest volunteers.

4.2. Corresponding/Associate members

It was noted that there are now 16 corresponding members and six associate members, most of whom interact with PSC on a reasonably regular basis.

5. Topics for discussion

5.1. Newark Hamfest

The chairman is not available to man a PSC stand at Newark this year and no other members of the committee are available, so it was agreed not to put on a stand.

5.2. RSGB Convention

Requests for lectures at the 2017 Convention are only just being made but possible PSC-related lectures might include:

Tim, G4LOH	Mixed-mode VHF propagation
Gwyn, G4FKH	Predtest and HF propagation
Jim, G3YLA	His new Critical Frequency tool

5.3. Propagation Seminar, Friday 13th October 2017

Professor Cathryn Mitchell of Bath University is getting NERC funding for a one-day Space Weather Knowledge Exchange Workshop that will be open to both scientists and radio amateurs. The date is the Friday before the start of the RSGB Convention (13th October) with the venue being the same conference centre (Kents Hill) in Milton Keynes. The event would start Friday morning and funding would include a hotel room for the Friday night.

Professor Mitchell has managed to obtain funding for a maximum of 40 places, with first refusal being given to PSC members – we will need to know who is interested quite soon.

The day is still very much in outline form, but is seen as an opportunity for knowledge sharing. As far as PSC is concerned there will be an opportunity for us to show what amateurs are contributing and also to talk about the various modes now available to amateurs for propagation research, such as Beacons, IBP, WSPR, PSK reporter, JT Modes, Reverse Beacon Network etc. We can also showcase Gwyn's Predtest (http://www.predtest.uk/index.html) and the new Critical Frequency tool (http://www.convectiveweather.co.uk/ionosphere/graphs.php?type=live) by Jim G3YLA.

More details will follow when they are available.

5.4. 5MHz beacons

GB3WES and GB3ORK have both had their NoVs renewed. GB3WES is running OK, but the GB3ORK beacon hardware has failed. The RAL 5MHz NoV was not renewed (that is, it is now officially expired) and the plan is to retrieve bits from that beacon to help with the repair of GB3ORK.

Murray Niman G6JYB has separately asked the GB3ORK beacon keeper to package and despatch the hardware itself to Andy G4JNT for repair. Andy is considering alternative modes for it, but it only has a 30-second window and he has ruled out WSPR, JTx, MSK144 and ISCAT.

5.5. RAL beacons

All the GB3RAL NoVs have been renewed except the one for 5MHz, but Mike Willis reports that there are still access issues at Rutherford Appleton Laboratory. The current status of the beacons is believed to be that they are all switched off. There have been informal efforts to find a new home for them but nothing has been forthcoming so far.

5.6. Propagation Presentation Videos

The HF presentation video has now been used by 86 clubs, some followed by a live Skype-based Q&A with Steve G0KYA. As a result of this and other work for RSGB, Steve was awarded the Founder's Trophy at this year's RSGB AGM.

The VHF presentation has been used by 39 clubs, with the offer of a Skype Q&A with Chris G4IFX, Jim G3YLA and John G4BAO.

It was agreed to promote the existing videos again in the autumn, aiming at the winter season for club meetings. It was also agreed to consider the potential for additional videos.

Action: All

6. Projects and potential projects

6.1. ITURHFProp and predtest (G4FKH)

The predtest.uk website is working well with no problems so far. It is still being developed as can be noted from looking at the site. The latest little application to be added is for NVIS but it is not quite complete. It may turn out to be of particular value to Raynet but Gwyn has been unable to get the information he needs from them so far.

Last month the site received just under 3,000 hits. The hosting provider is continuing to provide a good service.

The developer, Mark M0WMT has added a number of features on his own initiative, specifically providing support on line of sight paths and path losses. Gwyn requested

feedback on these new features, which might provide a simple starting point for relative newcomers at higher VHF/UHF and microwaves.

Action: G4BAO/G4DDK to review and provide feedback

Gwyn has already submitted an article about ITURHFProp and predtest to RadCom but will investigate the possibility of updating it before publication to include the additional features.

Action: G4FKH

ITURHFPROP will now accept Type 13 antenna files and some have been submitted but this is 'work in progress' at the moment because of concern about the validity of the results returned from ITURHFPROP.

Action: G4FKH

6.2. Combined-mode VHF propagation (G4LOH)

Tim reported that his notice in RadCom, requesting reports on observations of mixed-mode propagation, produced many responses from around the world. This produced lots of anecdotal evidence of various presumed combinations of propagation mode but much of it is difficult to track. For the study, therefore, Tim has decided to focus on tropo plus meteor scatter because that combination is more reliably observable. So far, all the observed examples involve tropo across the sea, mainly the Atlantic Ocean, with the main operating mode being FSK441.

Observations of tropo plus meteor scatter signal reception seem to suggest that they are ‘stretched’ and short pings are not heard. The speculation is that this may be due to the signal entering the duct, distributed across a large area of its top side, rather than, as might have been thought, that the signal returning from a meteor trail enters the open end of a tropo duct.

Tim suspects that the tropo plus meteor scatter phenomenon is under-reported because operators concentrate on working strong tropo signals and do not attempt meteor scatter contacts if they are in the ducting area. Stations beyond the duct find little appetite for their FSK signals.

Ducting from the UK to the Canaries is much more common (28 days/year) than it is to the Azores (3 times a year), which indicates that Atlantic tropo is relatively much rarer at more northerly azimuths. Tim also reported the observation of reflections which appear to be from the islands of the Canaries or Madeira.

The aim of a presentation would be to show the extra-long DX possibilities, describe the mechanism and encourage further experimentation during suitable tropo conditions.

Action: G4DDK/G4BAO/G8AGN/G3YLA to provide appropriate input and/or contacts to understand the interaction between meteor scatter and ducting interaction. G4DDK suggested DL0OGI as a useful contact.

6.3. Noise measurement projects (G4FKH)

Gwyn G4FKH reported that the project is still in progress and data is still being sent into the APRS system and being stored and utilised. Results are still being logged on rsgbnoise.com and now cover half a solar cycle.

As the funding is going to run out, it is Gwyn's intention to end the project in the autumn of this year. A report will be sent to the RSGB for publication in RadCom.

Action: G4FKH

The additional 'environmental' project to understand individual users' experience of noise at VHF is in abeyance because of lack of focus and a lack of a common view on the scope and methodology required. Compromise is needed between measurement rigour and wide applicability.

Action: G4BAO discuss the approach with other interested parties

6.4. Goonhilly SDR (G0KYA)

After many emails and discussions, Goonhilly said it was not averse to the idea of a web-based SDR receiver, as long as it didn't interfere with its operations but they suggested that any work be coordinated through one person as it is already dealing with amateur radio via Graham Shirville for the ISS satellite work.

Contact was also made with Noel G8GTZ who was due to visit Goonhilly and he said it would be discussed with the Farnham SDR team (Martin G8JNJ and Phil M0DNY). Steve suggested that we might perhaps get RSGB funding for it but there was some question over what exactly was required and how it would be built.

Steve's suggestion was that it should be a web-based SDR, covering from 80-10m with perhaps an ALA1530 active loop. The last contact with Martin G8JNJ was in March 2017, but at the time of writing nothing more has been heard.

Action: G0KYA follow up with Goonhilly.

6.5. Poldhu GB3SSS beacon (G0KYA)

Poldhu ARC now has much better, faster internet access. They are keen to establish a 20m HF beacon using the GB3SSS call. After many emails it has been agreed with Murray Niman G6JYB that a low-power (5W) WSPR beacon on the standard 20m WSPR frequency would be permissible under that callsign.

This circumvents the IARU guideline on there being no HF beacons under 28MHz, lets them use the GB3SSS call, and would also add a 20m WSPR reception point in south Cornwall. This has now been put in the hands of Poldhu ARC for them to follow up.

6.6. IARU 50MHz synchronised beacons (G4IFX)

GB3MCB has been operating a one-minute cycle of PI4, FSK and carrier since last July on its original frequency 50.043. It was funded by UKSMG on the basis that it would join the synchronised program but this is encountering resistance from some hard-core 50MHz

operators who do not believe frequency sharing is the right solution. A potential compromise is frequency hopping to above 50.400 when not transmitting on the synchronised frequency.

The pilot cluster of synchronised beacons is now established on 50.005MHz with EI0SIX (period 0) and OZ4BHM (period 4) already operative. It is hoped that GB3MCB will join that first cluster soon, probably frequency-hopping to 50.443 during 'off' periods.

6.7. Web-based Critical Frequency tool (G3YLA)

Jim, G3YLA's Critical Frequency tool is is due to be formally announced via RSGB next month - the delay has been getting the correct approvals for the use of the data from the Lowell GIRO data centre. The tool uses Fairford ionosonde data to plot, in near real-time, the F2 Critical Frequency FoF2, predicted F2 MUFs over a range of path lengths, and FoEs. The tool can be found at http://www.convectiveweather.co.uk/ionosphere/graphs.php?type=live.

A feature has been prepared for the July RadCom and a GB2RS story will be issued in mid-June.

6.8. Other projects for the next 12 months

No new projects were put forward.

7. Reports

7.1. Chairman's report (G0KYA)

7.1.1. RSGB Strategy

Steve reported that RSGB has now published its new strategy. The committee chairs are being asked to ensure that all members are aware and to think about how we can work towards meeting its objectives. We will be asked to come up with a 2018 action plan that will outline the work we will do to meet the objectives.

The main points of the strategy are:

Growth – we will grow and develop amateur radio

Spectrum – we will maintain and enhance radio amateurs' ability to use the radio spectrum

Participation – we will support and encourage active participation in amateur radio

Research – we will promote active involvement in research and technical development

Diversity – we will encourage and respect the full range of amateur radio activities, in all its diversity

Membership – we will increase the proportion of radio amateurs who are members of the RSGB

Recognition – we will support, encourage and recognise our volunteers and staff

Organisation – we will ensure that the RSGB is an effective, efficient and flexible organisation that works with and listens to our members, clubs and special interest groups to meet the changing needs of the amateur radio community.

7.1.2. Chairman's tenure

In November 2015 RSGB introduced a maximum term of office for committee members of six years. After this there has to be a further election for each post, to give other people a chance to stand if they wish.

Steve's tenure as chairman comes to six years in October 2017. RSGB may be reviewing this ruling and Steve has been told to continue until he hears again later this year, but nonetheless he proposed that there should be an election process at the September PSC meeting for the posts of chairman, deputy chairman and secretary.

7.1.3. Other activities

No progress has been made with Steve's proposed solar flare/Es experiment due to lack of time. His new RSGB propagation book was published just after the Newark Hamfest last year.

7.2. Ron, G3SVW has added a propagation page to the South Manchester Radio Club website. He is also experimenting with lower (MF) frequencies for SMRC club net to exploit NVIS.

7.3. Chris, G4IFX has conducted one Q&A after a showing of the VHF presentation video (Stirling club) and is delivering a 50MHz presentation, with a propagation emphasis, to the Shefford club next week. He is about to re-start 50MHz polarisation measurements via Es.

7.4. Sam, G4DDK will be at Dayton next week and will be doing a transverter-related talk to the VHF forum. He reported that the VHF/UHF DX Handbook, of which he was one of the authors, has now been made available free of charge for download online. He now has a 10GHz EME station and has noticed that the signal sounds quite 'musical' because of the libration. He can see 0.7dB of moon noise and the DL0SHF beacon is quite strong (QRA64D) when it's on. Sam is continuing to contribute to GB2RS on a semi-regular basis.

7.5. John, G4BAO has continued with his RadCom column and contributions GB2RS. He is giving a talk to the Cambridge club on microwaves in a few weeks' time.

7.6. Gwyn, G4FKH gave a talk on the 7th May at the first Scottish AR and Electronics Rally in Glasgow.

7.7. Martin, G3USF intends to stand down as IARU R1 regional beacon coordinator at the next IARU conference (presumably in September 2017).

8. Any other business

None

9. Date of next meeting

The date of the next meeting was provisionally agreed to be Saturday 16th September.

10. Close

The meeting closed at 16.15

Chris Deacon G4IFX
PSC Secretary